IRA W. CLOKEY
1635 LAUREL STREET
SOUTH PASADENA, CALIFORNIA

March 13, 1937.

Dear Dr. Johnston:-

On the 1st. I sent to the Gray Herbarium a number of plants for comparrison. ALL of these were in relation to plants I already have for the Exsiccatae Grayanae or needed infromation for future sets. In the case of three I held back the notes until I could get them in proper shape. To do this it has been necessary to make several trips to the Los Angeles Museum or to Pomona.

I am inclosing notes in regard to three of these. You kindly offered to look into anything which I wished you to take up personally. As you have been working with Astragalus I would appreciate it if you would look after these. I have Grayanae sets of all three and all three are of interest no matter what is decided about them. All three were collected in 1935 and because they seemed different were studied in the field last year, collected in quantity and compared with all available literature and specimens. I hope that you won't think that I have gone too much into detail with 5518. Just consider the notes in regard to these as presenting one side of the question. I am looking at everything there critically whith the hope of finding a novelty. If it is not I won't hesitate to drop it. If it should prove to be worth while I want the type material to be distributed through the Exsiccatae.

I have been looking forward to the return of the Borages. It is time to collect the silky form of C. oxygana but I would like to see material that you have examined.

Very truly yours,

Ira W. Clokey

P. S. Will you kindly ket me know the exact type locality of
Arabis pendulina Greene Leaflets 2: 81. 1910.
Frasera induda Tidestrom Proc. Biol. Soc. Washington 36: 183. 1923
Amelanchier nitens Tidestrom. Proc. Biol. Soc. Wash. 36: 182. 1923
I want to collect these in the exact type locality

I W C

Heliotropium § Heliophytum,

lxxxi. 21.

Aralia pendulina Greene

"In woods of the Charleston Mountains, southern Nevada, at 7,000 to 8,000 ft.; C. A. Purpus, 1898; his n. 6104 in U.S. Herb."

Heliotropium

§ Heliophytum, lxxxi. 25.

7 rosera inducta Tidestrom

Rocky places of the pinon and yellow pine belts, Charleston Mts, Nevada, 1898, Co. C. Purpus #6083

Heliotropium § Heliophytum, lxxxi.
38.

Amelanchier utens Tidestrom.
Pinon belt near Wilson's Ranch,
base of Charleston Mts, southern
Nevada, May 27, 1919, by Jesse
Tidestrom (no. 9653)

List of plants sent for the Exsiccatae Grayanae. April 14, 1937.

From California
5806 Plagiobothrys sp.
6609 Abronia villosa Wats. var. aurita (Abrams) Jeps.
6885 Pentstemon antirrhinoides Benth.
6993 Calochortus Kennedyi Porter
6994 Yucca Whipplei Torr. var. Parishii Jones

From the Charleston Mts.
5372 Cheilantes Feii Moore
5455 Mirabilis Froebellii (Behr.) Greene var. glabrata (Standl.) Jeps.
5478 Lesquerella Hitchcockii Munz Type locality
5498 Ivesia Jaegeri Munz Type locality
5516 Astragalus sp. Name in fall.
5517 Oxytropis sp. " " "
5518 Astragalus sp. " " "
5535 Linum australe Heller
5542 Oenothera longissima Rydb. Identified by Dr. Munz though some differences. Dr. Emerson at Cal. Tech. is growing this with O. longissima from Utah.
5548 Angelica sp.} Miss. Mathias thinks that both of these are
5549 Angelica sp.} probably undescribed.
5615 Chrysothamnus Parryi (Gray) Greene var. Dr. Blake is uncertain about this.
5634 Solidago trinervata Greene
5638 Senecio sp. Possibly a new species or variety. Dr. Greenman has this in hand.
5644 Solidago petrodora Blake
7054 Yucca sp. At present at Harvard
7072 Eriogonum microthecum Nutt. var. MacDougalii (Gdgr.) St.
7073 Eriogonum cernuum Nutt. ssp. tenue T. & G.
7094 Aquilegia sp. Possibly A. scopulorum Tidest. but want to see type material
7143 Chamaebateria millefolium (Torr.) Maxim
7199 Mentzelia laevicaulis (Dougl.) T. & G.
7223 Epilobium nevadensis Munz. Type locality.
7253 Gilia Nuttallii Gray
7312 Pentstemon Keckii Clokey ined. Approved by Dr. Keck.
7313 Syntheris ranunculina Pennell
7322 Castilleja sp. } Dr. Pennell things that 7322 is new
7327 Castilleja possibly new var. } but has not reported on 7327
7413 Gutierrezia lucida Greene
7414 Chrysothamnus nauseosus (Pall) Britton var. mohavensis (Greene) Hall
7415 Chrysothamnus stenophyllus (Gray) Greene
7416 Chrysothamnus nauseosus (Pall) Britton var. speciosus Hall
7417 Chrysothamnus gramineus Hall Type locality
7423 Chrysothamnus viscidiflorus (Hook.) Nutt.

The Yucca leaves, being in quantity are wrapped separately.

Notes on rose species from the Charlestons.

All species are Rosa Woodsii Lindl. As defined by Mrs. Erlanson

In the Charlestons there are several forms (Rydberg species) that should be differentiated but how to do this and how much attention should be paid to variable characters is a question. I am anxious to come to some decision about this as I want to put up one or more of these forms for the Exsiccatae Grayanae. Of course any number put out would have to be uniform.

Without authentic specimens and with the variability of some characters I have with hesitation identified the different numbers as follows:

No.	By Rydberg in North American Flora	By Mrs. Erlanson?
5648	R. granulifera	R. granulifera
7443 } 7444 }	R. granulifera	R. granulifera
7442	R. granulifera	R. granulifera
7152	R. granulifera	R. granulifera
5511	R. neomexicana	R. neomexicana
5503	R. "	R. "
7440 } 7441 }	R. "	R. "
5650	R. "	R. "
5499	R. "	R. "
5510	R. "	R. pyrifera
5510a	R. "	R. puberulenta

5510 and 5510a differ from R. neomexicana as pedicels are not glabrous and sepals are pubescent on back especially when young. With age pubescence less on center of back of sepals. Mature fruit red not purple.
5510 and 5510a Mature fruit red not purple.
5499 Leaflets somewhat glandular

5510 Leaflets not glandular

5503 and 5511 Some leaflets glandular

With some of the forms going to R. granulifera only some of the primary leaflets have secondary teeth.

If several forms are desired I would suggest 7443-7444, 7440-7441, 5510 and 5510a. I have nearly enough of the first two.

B. filipes, L.

2914
3272

See the bottom paragraph by Erlanson, Bot. Gaz. 96: 200. 1934 re the results among the multitudinous trinerd variants in Rosa.

Poa distans, lxxvi. 150.

5510 has a globose hypanthium
but no bracts and Leaf Clade 1
to R. nemoralis. (R. pubicaulis
appears to have a globose
while R. nemoralis
to have an elongated

Poa distans, lxxvi. 151.

5516 a.o R. Pyrifera. These appear
to be distinguished from E. radiata
by having Blades broader at base
but a fuller specimen has to be
seen would be very desirable
Kahili.

Poa eminens, lxxvi.54.

[illegible] genitifer is supposed to have
"Scyllia bristle-toothed with slender
teeth, conspicuously glandular processes
beneath." The specimens we have here
very rarely have any biserations and are
not "conspicuously glandular processes
beneath."

Poa bracteosa, lxxxiii. 47.

5516 Astrag alus

In floras runs to A.. calycosus Torr but not that.

In Rydberg Torrey Bot. Club Vol. 54 page 13 This runs to Hamosa manca Rydb. Rydberg states "Apparently also in Charleston Mts., Clark Co., Heller 11032. Hellers plant was probably the same as 5516 but is it Hamosa manca? Description not complete and no specimen here.
5516 Pod not at all sulcate on either suture, two celled by partition from dorsal suture that reaches ventral suture but not attached, not inflated or possibly very slightly so, sessile, erect elliptical in cross section. Clayx hardly companulate, tube 5 mm. long.

Poa Trinii, lxxxiii. 45.

malicher Keller 11032 in Ox
Cahuilla Hamasa Maria Ayllon
Compare with Gye!

5517 Oxytropis sp.

Perennial from a branching caudex, subaculescent. Leaves tufted on the ground, 4 cm. or less long, covered with long semi-depressed silvery pubescence. Stipules 5-6 mm. long, 3 mm. wide, adnate 1/3-1/2 length, broadly lanceolate, abruptly acute, whining hyaline, glabrous, entire or ciliate with long white hairs. Leaflets 13-17, elliptic, obtuse, 3-5 mm. long. Peduncles pubescent, 3-10 cm. long holding the subcapitate cluster of 3-5 flowers well above leaves. Mature fruit drops to or near the ground. Bracts subulate, pubescent, 4 mm. long. Calyx 6 mm. long, with black and white pubescence; teeth subulate 2-3 mm. long. Corolla glabrous, 10-11 mm. long. Banner 2 mm. longer than wings which are 1 1/2 mm. longer than keel. Banner blurish purple, wings and keel purplish. Pod ovate, acute, 15-17 mm. long, 6-8 mm. wide, reddish tinged, white pubescent. Style hooked.

This plant has been referred to Oxytropis oreophila Gray from which it can be distingu ished by the following key:

Leaflets 13-17; peduncles 3-10 cm. long holding flowers well above the leaves; stipules glabrous on back, entire or ciliate:
Oxytropis sp.

Leaflets 5-11, peduncles 1-5 cm. long holding flower cluster in or just above leaves; stipules clothed on back with long white hairs;
Oxytropis oreophila Gray.

Oxytropis oreophila Gray was described in the Proc. Amer. Acad. 20: 3. 1885 from plants from two sources: L.F. Ward, Aquarius Plateau at nearly 10000 ft., Utah in 1875 and W. G. Wright, Lemmon, Grayback (San Gorgonia) San Bernadino Co. Calif. at 9000-10000 ft. in 1879-1880.

I have seen no material from the Utah station but it must have been identical with the San Gorgonia material. At Pomona there are five sheets from the type locality on Mt. San Gorgonia. These fit the description by Gray and differ from the Charleston Mt. material as shown above. This should of course be compared with the type material from both locations, which are probably at Harvard.

At Pomona other plants referred to Oxytropis Oreophila are as follows:

Purpus 6223, Cave Springs Mt. Utah is O, oreophila

Jones 5958ac Marysvale, Utah
Jones 5674 Helen Mts., Utah
Mathias 730 Cedar Breaks, Utah
Jaeger three collections from the Charlestons
all are this species.

In addition to the above the plants from San Gorgonia have only 2-3 flowers in a head.

5.17 Euphrasia

Fruchtkelch, Fruchtkrone

Clokey 5~~18~~ Astragalus sp.

Possible new species and sub-genus.

5518

Perennial, 4cm. or less high, from a tap root with fleshy roots. Branches growing 5 mm. or less annually. Leaves close set in a tuft resting on the ground. Vegetative parts silvery canescent. Stipules ovate 1 1/2-2 mm. long. Leaves 15-35 mm. long. Leaflets 11-17, 3-5 mm. long elliptic, obtuse. Peduncles 2-4 cm. long. Flowers 2-5 in a capitate cluster. Calyx silvery appressed canescent narrowly campanulate, tube 2-2 1/2 mm. long with subulate teeth 1 mm. or less long. Corolla glabrous 6-7 mm. long, parts approximately equal in length, bluish purple at or nearly to anthesis, with age becoming yellowish white except purplish tip of keel, banner becoming more or less bent. Stamens and pistil included. Stamens glabrous. Ovary densely white pubescent. Pod sessile, papery, much inflated, mottled with reddish purple, white puberulent, 20-30 mm. long, ellipsoid, slightly sulcate on both sutures, 2 celled, partition formed by intrusions from both sutures, placing seeds in middle of pod. Seeds mitten shaped.

See drawings of pods.

v This plant has been and could easily be confused with A. Platytropis Gray. It differs from that species not only in several particulars that will be brought out later but from all descriptions of A. platytropis in the formation of the partition in the pod. I can find no sub-genus or Rydberg Genus that has the partition formation of 5518. If the pod formation is as fixed and as important as is seemingly accepted in treatments of Astragalus, it seems to be that a new subgenus will have to be provided.

To make certain that this partition difference does exist I have gone into what A. platytropis is.

5518 -3

Gray Proc. Am. Acad. 6: 526 (1866)
Describing A, platytropis
" both sutures are septiferous, the funiculi being adnate to the ventral portion of the septum in the manner of the Diphysi to which this remarkable species would belong by its fruit." The Brewer plant from Sonora Pass is given as the type. The expression "both sutures are septiferous" might be uncertain if the plant had not been likened to the Diphysi which is characterized by a partition from the dorsal suture only with the seeds on the ventral suture. To the Diphysi (based on A. diphysus) belong A. Freemontii and A. lentigunosus. Jones in his work on Astragalus illustrates all three of these species. Rydberg in the American Journal of Botany Vol. xxxx xvii, No. 3, Plate xvi V- # 10 shows a pod structure for his Cystium diphysum (A. diphysus Gray) that would explain this description by Gray.
Gray gives the leaflets 3-4 lines long.

Jones ---- Astragalus

Jones puts A. platytropis in Strigulosi which has the partition intruded from the dorsal suture only. His description of A. platytropis agrees with this and his drawing plate 42 shows this with the seeds attached on the ventral suture. His description follows Gray but gives more details: Pod dark puberulent, peduncles 3-8 cm. long, leaflets 3-6 pairs, 7-10 mm. long acute or apiculate. Upper to middle temperate zone. Type as with Gray Brewer from Sonora Pass.

Rydberg places A. platytropis in his genus Cystium.
In his Rocky Mountain Flora he states for this genus " pod 2 celled by intrusion of both sutures."
In The Flora of North America " Pod---- perfectly 2 celled, the septum from the lower suture reaching the upper.
Rydberg cites the same type as Gray and Jones.
He gives in his description Peduncles 3-8 cm. long, leaflets 7-13, (5-10 mm. long in Rocky Mountain Flora) Calyx tube about 2 mm. long the teeth nearly as long (In Rocky Mountain Flora-calyx tube 3 mm. long, the teeth subulate 2 mm. long). Montane.

While there are some minor differences in the above descriptions and Gray omits measurements given by the others, they use the same type and evidently have the same plant in mind. This plant A. platytropis would be a plant with the pod 2 celled with the partition formed from the dorsal suture only and with the seeds located on the ventral suture, with 7-13 leaflets 5-10 mm. long.
Besides the difference in partition and location of seeds 5518 has uniformly 11-17 leaflets 3-5 mm. long.

Jepson in A Flora of California gives no information as to character of the septum but uses the Brewer plant from Sonora plant as the type as do the others. He gives the number of leaflets as 7-13 but changes the length of the leaflets to 3-6 mm. long. Beside the Brewer type Jepson cites Heller's plant from the Charleston (This may account for the change in measurements given for the leaflets) and Jones' plant from Shelbourne, Utah. Since Heller must have collected his plant within two miles of where I collected 5518 it is almost certainly the same as mine. A section of Jones' Shelbourne plant shows a partition structure exactly like my 5518.(I inclose a section)

Jones also cites this plant from Schelbourne.

I have seen a poor photo of the type and four of Jones' specimens as follows: Aurum, Nevada flowers only
Schelbourne discussed above
Sprucemont, Nevada fruit but nothing for disection
Mt. Ibapah No fruit or flowers, only a root and a few small leaves.
These all seem to agree with the descriptions of Gray, Jones and Rydberg in leaf characters and the Jones plants have a somewhat different pubescence than my number 5518. However I hesitate to draw any conclusions from such a small amount of scrappy material.

Have Jones and Jepson slipped in citing the Schelbourne specimen and Jepson in citing the Charleston Mt. material?

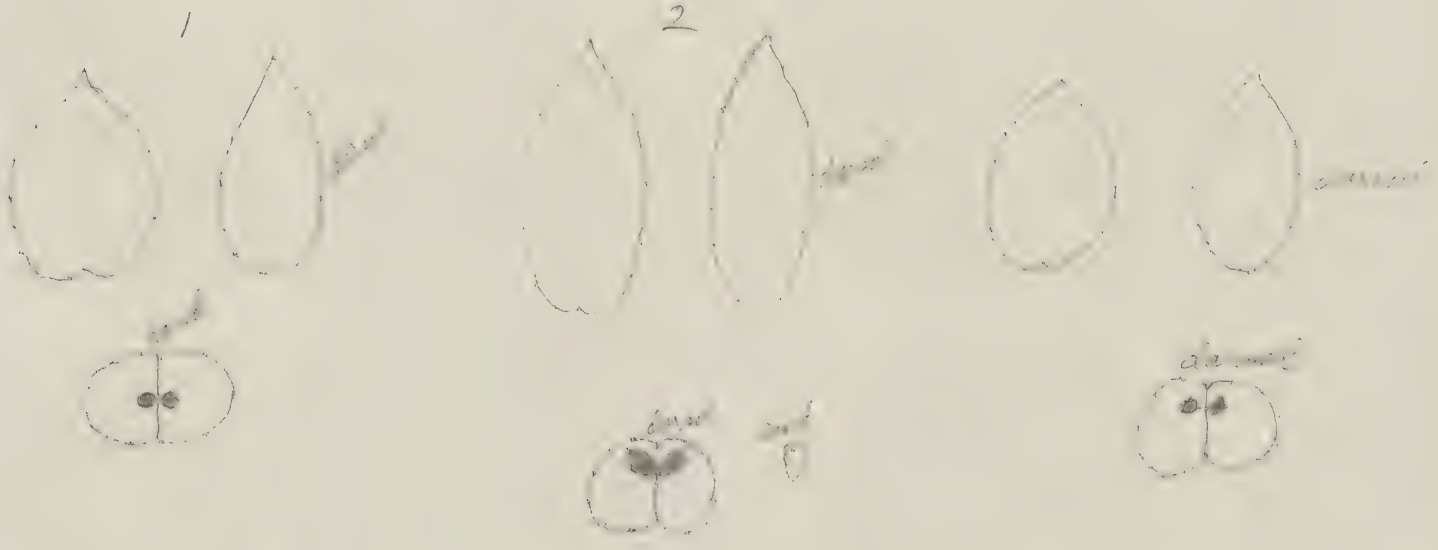
Have Gray, Jones and Rydberg been wrong in describing the structure of the septum? This doesn't seem reasonable.

Or Is the pod structure of less importance that it is given in treatments of Astragalus?

If the pod structure is as fixed and as important as it is usually considered it seems to me that a new subgenus should be created for my 5518 and for A. platytropis, if Gray, Jones and Rydberg have been wrong. Whatever is done about A. platytropis it seems to me that 5518 should be considered a new species. This on account of its isolation and the difference in leaflet number and size and the difference in pubescence. I have enough material to show that this Charleston Mt. plant is breeding true.

T-3578 Selaginella sp?

20 30. Both were collected. In every case fertile formed by intrusion from both sides. I am characteristically shifted parts were drawn to scale from fresh material



Pinkish green, white mottled midrib.

#2 with mature seeds

#4 the fresh had immature seeds but other fresh specimens had mature seeds and were larger than #1 & #3

5518 is an excellent match for the type of Astragalus platytropis Gray except in the number of leaflets. I ~~can find~~ found leaves on young specimen with as few as 7 leaflets. There is one leaf ~~on~~ and the type which looks as though it might have more than 13 leaflets but it is covered partly by other leaves.

Please turn over to the Gray Herb,

Contr. from C.C.Deam

The type ~~is~~ consists of only one small plant. The leaflet size specimens and is more likely due to the extremely high altitude than to any innate tendency. Heller's 11005 from 8600 ft in Lee Canyon, Charleston Mts has rather large leaflets. This ~~supports~~ explains my belief that the

Mt. Spec. Herb

small leaflets in gamo
are due to habitat.
I can see no difference
in pubescence between
your plant and the type
Your observation prone
to accurate as regards seed
~~the attachment~~ as those than Gray, ~~Jones,~~
~~+ Rydberg~~. The type has the
sutures introduced from both
sides, as described by Gray "both sutures are
and the seeds are septiferous",
borne on the dorsal
suture. The type has only
young ovules and it would
be easy for Gray to have erred
as to their attachment. ~~The~~
~~later authors probably merely~~
~~copied Gray.~~ Jones plate #42
shows the seeds attached to
the dorsal (upper) ~~of~~ suture
which is correct. Rydberg's
descriptions of the sutures ~~do~~
~~not seem~~ are correct ~~as~~
Jones specimen from
Schelbourne Nova has rather
narrow leaflets but ~~is~~
otherwise does not appear to
differ much.

5535 Linum (Cathartolinum)

Petals without ventral appendages. No stamnodia.

In the North American Flora this plant runs to Cathartolinum australe (Heller) Small. It answers the description fairly well but Heller (Bull. Torr. Bot. Club Vol 25, page 627) states that the sepals are 5 mm. long and that the petals are little linger than the calyx. Rydberg in the North American Flora states that sepals become 6-8 mm. long.

In 5535 the sepals are the same length as the capsul, noy over 4 1/2 mm. long, one mm. of which is the terminal spine. The petals are 8-9 mm. long.

None of the specimens cited by Heller or Rydberg are available. At Pomona are three specimens, Townsend and Barber Np. 83 Chihuahua, Mexico; Baker 451 Arboles, Colo. and Eggleston 15191 Wray, Colo. The floral parts of these are a goos match for 5535 but the leaves of all three are much shorter and narrower.

I have a set of this for the Exsiccatae Grayana.

Heller's Bull Tax Pub. 25: 127. 1898
measurement of
5 mm for two spots is
only a poor approximation.
Small's measurement of
6-9 mm is better. Small's
emphasis on the discreteness
of the larger bases is an
exaggeration. They certainly
N. Am. Fl. 25: 81. 1907.

are densely at the stem base
in an isolate of Gray.
Small's "serrulate" leaves
as to base is also exaggerated.
They are mostly entire.

Simum australe Hellq

5638 Senecio sp. nov.

Perennial. Plants light green, suffrutescent at base, 6-10 dm. high and as wide. Stems striate, unbranched at base, above numerous flowering branches. Stems and leaves glabrous at least in age, frequently with a small tuft of tomentose pubescence in axles. Leaves many not noticeably reduced upwards, entire, narrowly lineate acute. Leaves on main stem 5-12 cm. long, 2-4 mm. wide, uniform in width to base. Leaves on branches and bracts similar but smaller. Inflorescense corymbose. Heads numerous. Involere narrowly campanulate. Floral bracts 8, 5mm. high, not carinate, linear, abruptly acute, usually dark brown or black tipped, glabrous except small taft of hairs inside at tip. Calyculate bracts several, minute, with dark brown or black tips. Ligules 4-5, 6-7 mm. long, 2 mm. wide, four veined, rounded at apex with two minute notches reducing three rounded lobes. Disk flowers 6-9. Achenes glabrous or sparingly mintuely canescent.

The above description is based on plants collected in a brushy meadow, in the Yellow pine belt, at an elevation of 2300 meters in Lee Canon Charleston Mts., Clark Co., Nevada, where it is locally abundant. My Number 5638, deposited in my herbarium is designated as the type. Material of the type collection and number is being distributed in the Exsic catae Grayanae.

This species belongs to the Suffruticosi Greenman (Greenman Monograph --- der Gattung Senecio, Leipzig, 1901) and to Longilobi (Rydberg, (Rocky Mountain Flora) Owing to the narrowly linear entire leaves it could be confused only with Senecio spartioides T. & G. From this species it can be separated by the following key:

Bracts 8, not carinate, 5 mm. long, achenes glabrous
Senecio sp. nov.
Bracts about 13, carinate, 6 long, achenes silky canescent. Senecio spartioides T. & G.

I have not stated the length of the bracts for S. spartioides in the above key. They are manifestedly considerably longer than this specimen but I had available only a few specimens of S, spartioides mostly my own collections from Colorado, so I hesitated to fix these measurements. In Comparing this material will you kindly note the length of floral bracts for a few specimens of S, spartioides.

5638

Better as a var. of spartioides
Clokey 3496, Buena Vista Colorado
approaches it in size of phyllaries
texture of achenes. The immature
achenes of your 5638 certainly are

~~Bougainvillea, XCVIII.~~ not glabrous.
The carination
of the phyllaries is partly a matter of age.
9 ~~11~~ some heads ~~as~~ E. J. Johnston 328B
F.b. Suyton, Cala. the phyllaries are
as short as 5 mm in heads with open clarets.

7540 Philadelphus

In Munz this runs to P. serpyllifolius.

7540	P. serpyllifolius
Leaves generally over 1 cm. glabrous.	Leaves less than 1 cm. long. strigillous above.
Style united 2/3 or more stigmas free.	Styles very short, united. stigmas more or less united.

In Tidestrom would not run to anything. P. microphyllus has petals 10-13 mm. long, capsule 8 mm. long. P. occidentalis has petals 10-13 mm. long, capsule 6-7 mm. long.

In Rydb. Rocky Mt. Flora would run to P. minutus if anything.

7540		P. minutus
Glabrous, dull	leaves	Densely hirsute- strigose beneath, shining.
	sepals	
3 mm.		5 mm.
6-8 mm.	petals	10-12 mm.

In Jepson Flora of California Vol. 2, part 2, page 190 would not run to or fit anything. Jepson however gives petals of P. microphyllus as 3-4 lines long.

North American Flora adds nothing.

The only specimens that I have found to match this are from the Charlestons and at the Missouri Botanical Garden three sheets of E. Palmer 151, 1877. The Charleston specimens, Jones and Jaeger, and the Palmer specimens have been labeled P. microphyllus.

7540, Charleston Mt., and Palmer specimens.		P. microphyllus
Dull	leaves	Shining
2 mm. long	hypanthium	4-6 mm. long
3 mm. long	sepals	5-6 mm. long.
6-8 mm. long	petals	10 mm. long *
united 2/3 plus	styles	styles united
free	stigmas	usually more or less united.
4-5 mm. long	capsule	about 8 mm. long
ca 30	stamens	ca 40

* Jepson gives petals 3-4 lines long.

From available literature and specimens #7540, Jones and Jaeger plants from the Charles one and E. Palmer # 151, seem to be an undescribed species.

7783 Prunus emarginata (Dougl.) Walp.

The flowers are smaller than description of P. emarginata and the branches are not red shining. Have seen specimens that seem to grade into this. No fruit developed this year. The young fruit was elongated rather than round.

7841 Amelanchier leaves glossy
7842 Amelanchier leaves dull.

7841 is a rounded well filled out plant. 7842 is a scraggly plant with the branches diverging.

7734 Valeriana

In Rydb. this runs to V. pubicarpa Rydb. or V. puberulenta Rydb. It differs from V. pubicarpa as lowest stem leaves are divided and flowers are only 2-3 mm. wide. Also the corolla is glabrous. From V. puberulenta in having pilose fruit.

7478 Fritillaria atropupures Nutt. ? E K

This plant resembles many specimens labeled F. atropurpurea Nutt but the fruit is that of F. pinetorum Davidson. These plants are almost invariably single flowered, the flowers are smaller shaped and the leaves fall in number generally below F. atropurpurea as given in the floras. The plants in herbaria show considerable variation.

7567 Iresine

This plant comes closest to Iresine pygmaea Gray Proc. Am. Acad. 6: 501, 1865 but differs from the description in that it is decidedly glandular, has five stamens instead of 10, 8-10 carpels instead of 7 and has a strongly villous receptacle.

At the Mo. Botanical Garden are three specimens labeled I. pygmaea. Of these C. A. Purpus 3178, Flora of S. W. Calif. April-Sept. 1907, alt. 11-12000 ft. has been checked by Rydb.

7567	Purpus plant
Leaflets frequently with several bristles at tip, short glandular hairs and long white hairs. Broadly elliptical.	Leaflets usually with 1 bristle at tip. Somewhat glandular with short hairs; no long hairs. Somewhat spatulate
Glandular pubescent with numerous long hairs	Stem. glandular puberulent with sometimes a few long hairs
Densely caespitose with groundhead system. short heavy stems.	Loosely caespitose with underground stem slender

I did not dissect this to count stamens and carpels. Tidestrom gives stamens as 5-10 and Jepson states stamens usually 10

Please compare this with the Brewer plant. This plant would seem to differ from I. pygmaea in the loosely caespitose slender branches, strongly glandular and villous condition and in the 5 stamens and the 8-10 carpels.

~~7~~ 7553. Prunus emarginata

For a perhaps excessively reactionary discussion of this rather collective species see Jepson, Fl. Calif. 2: 225-226. For the opposite extreme see Greene, Prac. Biol. Soc. Wash. 18: 56-60. 1905. If your plant may represent Cerasus and Greene's hint for the present they will all have to go as the aggregate.

Echinomastus uncinatus, var.
Wrightii [incorrectly attributed to Engelm. by] B.M. Knuth

Backeb. & Knuth, Kaktus-ABC, 358. 1935.

[Echinocactus uncinatus, var.? Wrightii]
Engelm.

737

7731 Euphorbiaceae

I can find anth ing to match this. In the field some plants had foliage the color of these specimen and other plants around 7731 were taken from the green plants.

Parishii

vaccinioides

rotundifolia

longiflora

Check limits of these - most like.

Symphoricarpos

Echinocactus Weingartii Ward.

Monats. Deutsch. Kakt.-Gesellsch.
3: 175, Dec. 1931. – Mexico
(Tamaulipas).

Neolloydia Weingartii (Ward.)

F.M. Knuth.

253

Symplocarpus

creophilus

vaccinioides

longifolius

rotundifolius

Parishii

Echinopsis mistiensis Ward. +
Backeb.
Neue Kakteen, 84. fig. 1931. - Peru.
Hadde, Rep. Spec. nov. 30:64. 1932.

Salpixia mistiensis (Ward. + Backeb.)
Backeb.

925.

155

7576 Ditaxis
7577

This Ditaxis is close to D. cyanophylla W. & S. of which I have found no authentic specimen at Pomona, Field Museum or the Missouri Botanical Garden. Dr. Stanley stated that this is not D.cyanophylla. Very little fruit developed this year (7577). The Grayanae set is No. 7576. Unless you find some evidence to the contrary I propose to publish this as a new species.

Aside from the geographical separation the following differences with the description of D. cyanophylla may be noted.

7576	Ditaxis cyanophylla
Not over 20 cm. high at anthesis. Not over 30 cm. at maturity.	30-40 cm. high.
Leaves dull	Leaves shining
Does not turn water red on soaking.	Drying bluish in some plants. Stained water red on soaking.
Axilary clusters 2-4 flowered	Axilary clusters 4-6 flowered.
Sepals 4 1/2-5 1/2 mm. long. In staminate flowers lance lineate acute. In pistillate flowers lanceolate acuminate	Sepals 6-7 mm. long. In both kinds of flowers lanceolate acuminate.
Petals of staminate flowers white rather than light yellow. Red diffused throughout pepals. Pistillate petals white with dark blue or bluish-green veins.	Petals of staminate flowers light yellow with red veins. Petals of pistillate not given.
Seeds rough, 3x2 mm. not quite mature, drying brown.	Seeds spheroidal, smooth, blotched with blue and red.

7547 Cercocarpus

No adequate description or type material available. The type is I presume at Gray. Will you kindly compare this.

Comparison with local floras.

	leaves	hypanthium tube	achenes	Tail
7547	3-5(-6) mm. midrib concealed	3-4 mm.	5-6 mm.	2 1/2-3 cm.
Munz	4-10 mm.	3-4 mm.		2-4 cm.
Rydb.	5-15 mm.	4 in flower 6 in fruit	ca 7 mm.	3-4 cm.
Jepson	5-10 mm. revolute, nearly meeting under midrib.	4-6 mm.		2-3 mm.
Tidestrom	5-15			

Jepson cites Heller 11047 from the Charlestons (see later) as C. intricatus.

At Pomona only plants to match 7547 are from the Charlestons. Other plants have larger, less tightly rolled leaves and larger hypanthiums.

At Field Museum only plant to match 7547 is Heller's 11047 from the Charlestons. This is also at Missouri Botanical Garden.

At the Missouri Botanical Garden the only specimen to match this is Heller 11047 from the Charlestons. What I feel are the most dependable specimens of C. intricatus at the Mo. Bot. Garden are the following.

E. J. Palmer 38060 July 26, 1930. (Plants of Utah from the Arnold Arboritum)
C. C. Parry 28 Flora of Central Utah 1875
C. C. Parry 159, Flora of Southern Utah 1874

The last two are annotated by Camilla Karl Schneider as C. intricatus Wats. typicus.

These three show the following comparison with 7547

7547		Palmer and Parry plants.
1/2-1 mm.	Petiole	1-2 mm.
3-5 mm. long. Rounded at apex. So tightly rolled that midrib does not show.	leaves	Ca 10 mm. long. Acute-apiculate. Mid rib and part of lower surface shown.
3 1/4-4 mm. pubescence curly	Hypanthium	7-8 mm. Pubescence straight.

If the above Palmer and Parry plants match the type I would consider 7547 as a new species based on leaf and hypanthium characters, elevation and isolation.